

AMENDMENTS TO THE SPECIFICATION

Replace the paragraph beginning on Page 10, Line 7 with the following new paragraph:

Preferably, the structural components of the outer arm portion 35 and the wrist 37 are formed from a non-conductive material having suitable structural strength and impervious to the corrosive properties of solvents used in the painting environments, such as ~~Lauramid~~ LAURAMID A material. "~~Lauramid~~" "LAURAMID" is a registered trademark of Albert Handtmann ELTEKA Verwaltungs-GmbH of Biberach, Germany. The ~~Lauramid~~ LAURAMID A material is a castable polyamide Nylon 12G material that also provides for electrostatic isolation, cleanliness, cleaning capability, and weight advantages. Grounding of internal gearing (not shown) in the wrist 37 and other conductive components is not necessary for use in the paint booth 21 because they are suitably insulated. Non-grounded components are advantageously less likely to attract paint overspray resulting in a cleaner robot 16 requiring less maintenance and having better transfer efficiency of the paint to the vehicle, all resulting in less operating cost. The conductive components could also be charged at a lower or the same potential as the spray applicator.

Replace the paragraph beginning on Page 12, Line 6 with the following new paragraph:

The outer arm 35 of the robotic painting device 16 of Fig. 5 is shown from the side of the color changer 42 in Fig. 7 and from the side of an internal paint canister 47 in Fig. 8. The outer arm 35 according to the present invention incorporates some of the features that were present in the traditional waterborne applicator and integrates them into a robotic paint application device whereby the arm and wrist components are constructed of a non-conductive material. A housing or shell 35a of the robot outer arm 35 and a housing or shell 37a of the wrist 37 are constructed of a suitable non-conductive material such as ~~Lauramid~~ LAURAMID A Nylon 12G. The color changer 42 having a plurality of electrically grounded color valves 42a is mounted on an exterior side surface of the housing 35a as best seen in Fig. 7. On the opposite side of the outer arm 35, there is mounted the electrically charged paint canister 47 inside the wall of the housing 35a thereby separated from the grounded color valves 42a on the other side. This configuration allows the use of the same color valves 42a and the same applicator 17 as used in a solvent paint

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system, thereby resulting in both lower cost and common hardware platforms. In addition to the cost savings, the described hardware arrangement also minimizes the weight of the hardware to be mounted on the robot wrist 37 which allows the use of a lower cost robotic manipulator to perform the painting function. Another benefit of integrating the waterborne hardware internal to the robot arm 35 is that it removes the hardware from "harm's way" and from potential collisions that are frequent with hardware that is mounted on a robot wrist.

Replace the paragraph beginning on Page 13, Line 6 with the following new paragraph:

There is shown in Fig. 9 the canister 47 and an associated drive system. A quick disconnect piston ram 50 is retained in a drive bracket 51 mounted in the housing 35a (Fig. 8). A drive motor 52 provides rotational power to a reducer 53 that is connected to the piston ram 50 through a coupling 54. The piston ram 50 is a ball screw type drive that is utilized to dispense paint to the applicator 17 during a vehicle painting operation. The mechanism 50 features a ram attached to a piston (not shown) movable in a cylinder (not shown) formed inside the canister 47, which allows the piston to be driven all the way to the bottom of the cylinder thereby minimizing paint waste and canister cleaning effort. This configuration, allows the canister drive motor 52 and the reducer 53 to be positioned in an elbow 55, connecting the outer arm 35 to the inner arm 32, thereby locating the motor 52 a considerable distance from the electrostatics (not shown) associated with the canister 47. After a painting operation, the electrostatics are turned off and the dispensing canister 47 is isolated from the grounded paint supply lines at the color changer 42 by utilizing the insulating properties of the material (~~Lauramid~~ LAURAMID A) from which the outer arm housing 35a is formed. The dispensing canister 47 is mounted on the opposing side of the outer arm 35 from the color changer 42 and is fully surrounded by and enclosed in the insulating material of the housing 35a.